

09/805237

## WEST Search History

DATE: Tuesday, September 10, 2002

**Set Name Query**  
side by side**Hit Count Set Name**  
result set*DB=USPT,PGPB,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=ADJ*

L46	l20 and l28	7	L46
L45	l21 and l28	2	L45
L44	l16 and (l1 or l2)	1	L44
L43	(l12 or l13 or l14 or l15) and l1	2	L43
L42	L41 and l40	1	L42
L41	removing near2 (charged adj particle)	186	L41
L40	l25 and l5	4	L40
L39	L38 and (l1 or l2)	4	L39
L38	l23 and l24	5	L38
L37	L35 and (l12 or l13 or l14 or l15)	1	L37
L36	L35 and l16	1	L36
L35	L34 and (l7 or l8)	113	L35
L34	(l1 or l2) and l4	530	L34
L33	L32 and l19	1	L33
L32	l28 and l22	9	L32
L31	l28 and (l12 or l13 or l14 or l15)	1	L31
L30	L29 and (l12 or l13 or l14 or l15)	1	L30
L29	L28 and (l9 or l10)	4	L29
L28	L27 and (l7 or l8)	35	L28
L27	(l3 or l4) and l5	570	L27
L26	((multipole or multi-pole) adj2 (magnetic adj field))same (multi-aperture or ((multi\$5 or plural\$3) adj (hole or opening or aperture)) near2 (electrode or plate))	1	L26
L25	(conver\$4 near4 ion) with (neutral adj beam)	44	L25
L24	(neutral\$7 near2 (cell or housing or chamber or wall)) same (negative adj (potential or voltage))	26	L24
L23	(plasma near2 (source or generat\$3 or emit\$4 or wall))same (negative adj (potential or voltage))	704	L23
L22	process near2 (cell or housing or chamber or wall)	56632	L22
L21	((adjust\$4 or chang\$4 or var\$5) near2 (potential or voltage)) same (neutral\$7 near2 (cell or housing or chamber or wall))	28	L21
L20	((replensh\$3 or suppl\$4 or generat\$3) near4 electron) same (neutral\$7 near2 (cell or housing or chamber or wall))	47	L20

L19	conductive with ((multipl\$5 or plural\$3) near4 magnet\$2)	1118	L19
L18	((multi-aperture or ((multi\$5 or plural\$3) adj (hole or opening or aperture))) near2 (electrode or plate)) with (positive adj (potential or voltage))) same (neutral\$7 near2 wall)	1	L18
L17	(multi-aperture or ((multi\$5 or plural\$3) adj (hole or opening or aperture))) near2 (electrode or plate)) with (positive adj (potential or voltage))	6	L17
L16	(multi-aperture or ((multi\$5 or plural\$3) adj (hole or opening or aperture))) near2 (electrode or plate)) same ((multipl\$5 or plural\$3) near4 magnet\$2)	49	L16
L15	((multi-aperture or ((multi\$5 or plural\$3) adj (hole or opening or aperture))) near2 (electrode or plate))) same (electron near3 (separat\$3 or remov\$3))	14	L15
L14	((multi-aperture or ((multi\$5 or plural\$3) adj (hole or opening or aperture))) near2 (electrode or plate))) same (ion near3 (separat\$3 or remov\$3))	5	L14
L13	((multi-aperture or ((multi\$5 or plural\$3) adj (hole or opening or aperture))) near2 (electrode or plate))) with (ion near3 (separat\$3 or remov\$3))	2	L13
L12	((multi-aperture or ((multi\$5 or plural\$3) adj (hole or opening or aperture))) near2 (electrode or plate))) same (charge near3 (separat\$3 or remov\$3))	2	L12
L11	((multi-aperture or ((multi\$5 or plural\$3) adj (hole or opening or aperture))) near2 (electrode or plate))) with (charge near3 (separat\$3 or remov\$3))	0	L11
L10	(multi-aperture or ((multi\$5 or plural\$3) adj (hole or opening or aperture))) near2 (electrode or plate))	11058	L10
L9	(multi-aperture or ((multi\$5 or plural\$3) near3 (hole or opening or aperture))) near2 (electrode or plate))	22113	L9
L8	(neutral\$7 near2 gas) with (cell or housing or chamber or wall)	1165	L8
L7	neutral\$7 near2 (cell or housing or chamber or wall)	4638	L7
L6	neutral\$5 near2 (cell or housing or chamber or wall)	4223	L6
L5	ion near2 ((pulling-out or extract\$3) adj (electrode or plate or grid or mesh))	635	L5
L4	plasma near2 (source or generat\$3 or emit\$4 or wall)	45886	L4
L3	ion near2 (source or generat\$3 or emit\$4 or wall)	54774	L3
L2	(neutral\$5 near2 beam) same (irradiat\$3 near2 (object or target or substrate or article))	88	L2
L1	(neutral\$5 near2 beam)	2697	L1

END OF SEARCH HISTORY

**WEST**

Generate Collection

L39: Entry 3 of 4

File: JPAB

Mar 31, 1998

PUB-NO: JP410083899A

DOCUMENT-IDENTIFIER: JP 10083899 A

TITLE: NEUTRAL PARTICLE BEAM SOURCE

PUBN-DATE: March 31, 1998

## INVENTOR-INFORMATION:

NAME

COUNTRY

SAITO, MASAO

INT-CL (IPC): H05 H 3/02; H01 J 27/02; H01 J 37/08; H01 J 37/252; H01 L 21/3065; H01 L 21/304; H01 J 49/10

## ABSTRACT:

PROBLEM TO BE SOLVED: To irradiate a neutral particle beam stably even to an insulating material without charging the material by accelerating and extracting negative ions from a negative ion source and separating electrons and further removing at least a part of charged particles from the obtained neutral particle beam.

SOLUTION: A neutral particle beam source A comprising a plasma chamber 1 and a neutralizing chamber 2 and a sample chamber 3 in which a sample 11 is set in the center part of the bottom are connected through a neutral particle beam extracting outlet 10 with a small diameter of a charged particle removing electrode 8. In the surface treatment apparatus having such a structure, a gas such as oxygen is introduced into the plasma chamber 1 through a gas supply pipe 13 provided with a gas flow rate controller 14 and plasma is generated by glow discharge. In this case, the plasma is controlled to be plasma containing a large quantity of negative ions by controlling the pressure as high as about 1Torr by a vacuum pump 15. These negative ions are accelerated by applying negative voltage to a cathode 5 and at the same time earthing an anode 6 and the resultant ions are extracted into the neutralizing chamber 2 through an ion extracting outlet 7. Then, negative ions are collided with the residual gas to be neutralized and after that, charged particles are removed by the charged particle removing electrode 8 and the obtained neutral particle beams are supplied through the extracting outlet 10.

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